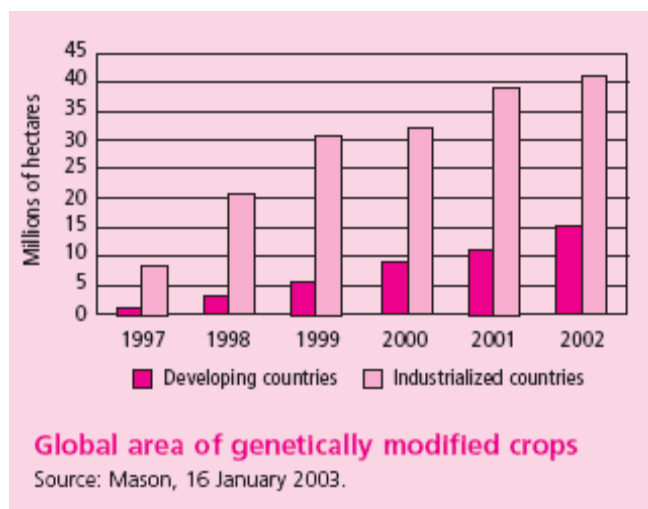


## Food for thought in the debate on genetically modified organisms

Case taken from The International Business Environment, second edition (Palgrave, 2006), by Janet Morrison

The production of genetically engineered plants to endow them with various qualities, such as the corn that produces its own pesticide, is altering farming and food systems, but there are doubts about the long-term effects in both developed and developing countries. In 1996, genetically modified (GM) crops were planted on 1.7 million hectares worldwide. In 2002, altered soya, corn, cotton and other crops were grown on 58.7 million hectares, most of it in the US, Argentina, Canada and China. In 1996, just six countries grew GM crops, while the number had grown to 16 by 2002, and nine of these are developing countries, where the growth in GM crops has been the strongest (see figure). In 2002, India, Colombia, Honduras and the Philippines approved biotech crops. However, the US is far ahead of other countries. It is estimated that as much as 70 per cent of the foods on the shelves of US supermarkets contain GM ingredients, although it is difficult to tell, as there is no mandatory labelling in the US. US biotechnology companies have invested heavily in developing GM strains, which now account for 75 per cent of the soya bean crop, 71 per cent of the cotton crop and 34 per cent of the maize crop in the US.



European consumers have been sceptical about GM foods. Eurobarometer, the European market research group, has found that European consumers question the safety of GM foods: 44 per cent felt GM foods to be less safe than other foods; 28 per cent said they have confidence in GM foods; and 27 per cent said they do not know (Mason, 14 May 2003). The EU has imposed a moratorium on the import of GM products, which the US has maintained is in contravention of WTO rules. However, the case is not clear-cut: WTO rules do allow for trade restrictions where there is a risk to health. The US has argued that there are no risks posed to health, and that the European ban is unjustified. The EU response has been a cautious one, reflecting disagreement among scientists on the possible long-term effects of GM foods and also highlighting a wide range of concerns of European consumers, whose confidence has been dented by a succession of food scares, including foot-and-mouth disease. The EU is legislating to require the labelling and traceability of GM foods, and setting a threshold above which the presence of GM products in food (for humans and animal feed) must be indicated on the packaging. Trials of GM crops in the UK, one of the world's largest such experiments, found that the crops were damaging for birds, insects and plantlife, causing concerns for biodiversity. Increasingly in Europe, farming exists alongside tourist and leisure industries. The report of the trials highlights the balance that needs to be made between agricultural production and opportunities for biodiversity. There is also concern over the 'co-existence' of GM and non-GM farming, as cross-pollination inevitably occurs.

For developing countries, research has made possible a high-protein maize and 'golden rice' enriched with Vitamin A, which can aid the estimated two million children vulnerable to diseases related to Vitamin A deficiency in poor countries. Both were invented by Western scientists, funded by research institutes, but IP rights have been acquired by global life science corporations, Monsanto (now part of Pharmacia & Upjohn)


and AstraZeneca. In a friendly gesture, they are giving developing countries' farmers free access to the grain. Sceptics question the use of golden rice as a 'quick-fix' remedy, pointing to more low-tech, cost-effective alternatives, such as the reintroduction of the diverse food plants which farmers used to grow before the 'green revolution' of the 1960s brought high-yield hybrid plants, also produced by Western laboratories. In 2002, despite widespread food shortages in Africa, a number of African countries rejected GM emergency relief food from the US, for fear that if it finds its way into their agricultural systems, it could affect their ecosystems. It could also affect their prospects of exports to the EU. In addition to the issue of food safety, the wider issue of environmental impact has risen up the agenda in the debate over GM crops. Meanwhile, scientific research proceeds on future generations of more complex organisms.

Sources: Mason, J., 'Scientists disagree, but farmers' harvests grow', Financial Times, 14 May 2003; Mason, J., 'World production of biotech crops keeps growing', Financial Times, 16 January, 2003; de Jonquières, G., Alden, E. and Buck, T., 'Sowing discord', Financial Times, 14 May 2004; Marquis, C., 'Monsanto plans to offer rights to its altered-rice technology', New York Times, 4 August 2000; Pollack, A., 'On the trail of genetically altered corn flour from Azteca', New York Times, 30 September 2000; Pollack, A., 'Kraft recalls taco shells with bioengineered corn', New York Times, 23 September 2000.

### **Case questions**

What are the concerns highlighted in the case study over GM food?

In your view, how would it be possible to derive the benefits offered by GM crops without risk to health and biodiversity?

 Monsanto's website is at [www.monsanto.com](http://www.monsanto.com)